REMARKS

Claims 26-56 are pending, claims 26-29, 46, 47 and 50 have been amended and claims 51-56 having been added as described herein. Reconsideration is respectfully requested in light of these amendments and the remarks that follow.

Turning to the art rejections, claims 26-34, 36, 37, 39-41, 44 and 45 have been rejected under 35 U.S.C. § 102(b) based on U.S. patent 3,579,974 to *Schmidt*, and claim 35 stands rejected under 35 U.S.C. § 103(a) based on *Schmidt*. Each of the remaining claims has been rejected under 35 U.S.C. § 103(a) based on *Schmidt* in view of another reference: claim 38 in view of U.S. patent 5,923,619 to *Knapen et al.*; claims 42, 43, 46 and 48-50 in view of U.S. patent 6,483,276 to *Shimizu et al.*; and claim 47 in view of U.S. patent 4,939,707 to *Nagao*.

Schmidt, the basic reference on which the Examiner relies, is directed to an electronically-controlled drive system for clocks. Starting *Schmidt's* drive system may be accomplished by applying force to a compression coil spring which, in turn, applies force to a connected member that engages a translating gear. The translating gear rotates in response to the applied force and causes the rotor wheel of the drive system to start rotating. See *Schmidt*, Fig. 1 and col. 3, line 72 – col. 4, line 5.

However, *Schmidt* does not disclose nor teach an arrangement in which a rotating force that is temporarily applied to any of a rotation target gear, e.g., a rotor, pinion thereof, or transmission wheel train in response to operation of an external member does not vary substantially regardless of the force applied to the external member, as recited in each applicants' independent claims 26-29, 46, 47 and 50. In *Schmidt*, the degree to which the compression coil spring flexes decreases gradually during start up, and thus the force applied to the translating gear gradually decreases. Consequently, with his device, it is not possible to maintain the application of a constant force when the rotor is starting. Thus, *Schmidt's* simple starting mechanism actually teaches away from applicants' claimed invention, which enables the application of a constant force to a target

gear when it is getting started, so it is possible to start the target gear and keep it rotating at a reference speed.

This feature also distinguishes applicants' claimed invention from JP 48-36878, which is submitted concurrently herewith by way of an Information Disclosure Statement. In JP 48-36878, when the adjustment shaft 1 is activated, e.g., pushed in, it moves the wheel 3 along the sloped surface 4a of the starter plate 4 which, in turn, causes the kick lever 6 to pivot against the force of return spring 5. Thus, the force with which the tip 6b of the kick lever 6 strikes the rotor 7 in response to activation of the adjustment shaft 1 varies based on the force applied to the adjustment shaft. That is, the harder or faster the adjustment shaft 1 is pushed in, the stronger the force the kick lever 6 applies to the rotor 7.

Unlike the starters in *Schmidt* and JP 48-36878, applicants' claimed invention advantageously enables the application of a stable and relatively constant startup rotating force to a target gear, e.g., rotor, regardless of the force applied to an external member which gives rise to, but does not determine the magnitude of, the force applied to the target gear. By maintaining the force that is transmitted from the startup member to the target gear approximately constant, regardless of how fast or forcefully the external member, e.g., a crown, is pushed in, applicants' invention is able to start up and rotate the target gear, e.g., the rotor, at the reference speed. In the case of a timepiece, this enables the watch hands to be precisely moved from the time at which a rotation controller is supplied with power for the startup to the time at which the rotation controller actually starts control, e.g., a period of about one second. As a result, an error in indication of the time can be eliminated. Moreover, by keeping the force applied to the target gear approximately constant and independent of the speed or forcefulness with which the external member, e.g., the crown, is operated, there is no need to consider the push-in speed of the crown, thus resulting in improved operability of the starter and associated device, e.g., timepiece. See applicants' specification, p. 26, lines 10-16 and lines 24-30 and p. 36, lines 24-29.

These advantages also flow directly from the structural arrangements recited in each of the new claims 51-56. In particular, these structural arrangements enable a rotating force to be temporarily applied to a rotation target gear (or pinion) in response to operation of an external operating member, such that the applied rotating force does not vary substantially regardless of the force applied to the external operating member.

Claim 51 recites a starter that comprises a startup spring having an engaging portion capable of mechanically engaging with an engaged portion of a rotation target gear of the mechanical energy transmitting means, and a startup-spring operating member comprising a latch portion capable of engaging with the rotation target gear to stop rotation thereof and a startup-spring biasing portion for biasing the startup spring by a predetermined amount. As claim 51 further recites, the startup-spring operating member is adapted to bias the startup spring so as to engage the engaging portion thereof with the engaged portion of the rotation target gear and to cause the latch portion to engage with the rotation target gear, in response to a first operation of the external operating member, to temporarily apply a rotating force to the rotation target gear, while the engaging portion is in engagement with the engaged portion and the latch portion is in engagement with the rotation target gear, whereby the rotor is rotated at an increased speed upon startup of the electric power generator, and to release the startup spring from a biased state to return the startup spring to an original position in response to a second operation of the external operating member. New claim 53 contains similar recitations, except that instead of reciting a rotation target gear, claim 53 recites a pinion of a gear of the mechanical transmitting means that is directly coupled to the rotor.

Each of new claims 54 and 56 is directed to a timepiece and recite that the first four elements in claim 46. These new claims also recite a starter, as in claims 51 and 53 respectively.

New claims 52 and 55 add a further feature to claims 51 and 54 respectively regarding the movement of the startup spring engaging portion during the biasing of the startup spring.

By employing a startup-spring operating member that capable of mechanically engaging a gear, pinion, etc. to be rotated, the structural arrangements of the new claims enable mechanical torque to be efficiently and constantly applied, as compared to arrangements which apply such torque by way of friction.

Moreover, the startup-spring operating member of the new claims includes both the latch portion, which acts as a stopper, and the startup-spring biasing portion that energizes and causes the startup spring to engage with rotation target gear/pinion. By bringing both into engagement with the rotation target gear or pinion, it is possible to maintain a substantially constant amount of energy (or flexing) in the startup spring. That is, it is possible to maintain a substantially constant position of the spring with respect to the target gear/pinion. Because of this, when the startup-spring operating member is moved causing the spring to engage with the target gear/pinion and then return to its original position, the spring returns to its original position from a condition in which the spring has been energized by the application of a substantially constant amount of flexion, so the torque applied to the target gear/pinion is substantially constant. This makes it possible to rotate the target gear/pinion at a substantially constant rate. Thus, when such an arrangement is incorporated into a timepiece, the transmission wheel train can be rotated at a substantially constant rate during start up, thereby decreasing the time indication error caused by the startup.

As for the other references applied by the Examiner, *Knapen et al.*, *Shimizu et al.* and *Nagao*, none teach an arrangement in which a rotating force that is temporarily applied to any of a rotation target gear, e.g., a rotor, pinion thereof, or transmission wheel train in response to operation of an external member does not vary substantially regardless of the force applied to the external member. Thus, none of these references offset the basic deficiency of *Schmidt*.

Accordingly, it is respectfully submitted that each of independent claims 26-29, 46, 47, 50, 51, 53, 54 and 56 is patentably distinguishable over any combination of the cited references. It is further submitted that each of the

associated dependent claims is patentable for at least the same reasons as its corresponding independent claim.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration of the present application.

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